

**TO** Air Quality Permit File: SOOP-63-00936  
PA-63-00936H  
Markwest Liberty Midstream & Resources, LLC /  
Houston Natural Gas Processing Plant

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**DATE** April 2, 2018

**RE** Review of Application for an Initial State Only Operating Permit  
Markwest Liberty Midstream & Resources, LLC /  
Houston Natural Gas Processing Plant  
Chartiers Township, Washington County  
State Only Operating Permit - APS # 952124; AUTH # 1201527; PF # 707674  
Plan Approval - APS # 852736; AUTH # 1042451; PF # 707674

**Background:**

The Houston Natural Gas Processing Plant is a natural gas processing plant. The gas exits the plant as pipeline quality natural gas. Separated, marketable, natural gas liquids are also loaded for delivery at the facility. The primary emission sources, at the facility, are four depropanization plants, one deethanizer, one fractionator, dehydrators, and rail and truck loadouts. It is located in Chartiers Township, Washington County.

On July 30, 2008, the initial Departmental authorization for the facility, General Permit (GP5-63-00936) was issued to MarkWest Liberty Gas Gathering Company, LLC ("MarkWest Gathering"), to allow installation and operation of one TEG dehydration unit, controlled with a flare, one reboiler, seven 30,000-gallon, storage tanks, and one truck load-out, at their Houston Natural Gas Processing Plant. Two engines to drive electrical generators were also authorized by this permit. The engines were a natural gas fired rich burn Waukesha Model L7042GSI, 1,265-bhp engine with a catalytic converter and an Ajax Model 2802LE, 384-bhp engine. MarkWest later decided the permitted Waukesha engine was not needed by the facility and this unit was never installed.

On October 3, 2008, a General Permit (GP9-63-00936) authorization was issued to MarkWest Gathering to allow installation and operation of four Caterpillar, Model C32 DITA, diesel-fueled generators. These generators provided electricity to the facility until a utility electrical

connection was made to the facility. The engines were taken out of service after utility electrical power was established at the facility.

On October 15, 2008, a General Permit (GP5-63-00936A) authorization was issued to MarkWest Gathering to allow installation and operation of the equipment previously authorized under GP5-63-00936, plus installation and operation of one natural gas process heater rated at 9.7 MMBtu/hr. This 9.7 MMBtu/hr process heater was later removed from the facility.

On April 03, 2009, the initial Plan Approval (PA-63-00936A) authorization was issued to MarkWest to allow installation and temporary operation of one propane removal system. The natural gas processing capacity of this system was 30 MMscf per day. This plan approval was later granted a duration extension, on October 9, 2009, changing the expiration date to April 12, 2010.

On April 17, 2009, GP5-63-00936A was issued to replace the initial General Permit, GP5-63-00936. This new permit was issued to change the name of the facility owner from MarkWest Liberty Gas Gathering, LLC to MarkWest Liberty Midstream and Resources, LLC. No changes were made to any emission sources at the facility by the issuance of this permit.

On November 13, 2009, Plan Approval PA-63-00936B was issued to MarkWest Liberty, to allow installation and temporary operation of one depropanizer, one deethanizer, and two heaters at the plant. The new depropanizer was known as Depropanizer #2, and the name of the existing depropanizer, previously authorized under PA-63-00936A, was changed to Depropanizer #1. Depropanizer #2 and the deethanizer were designed to process 120 MMscf/day. The additional process heaters were rated at 4.01 MMBtu/hr input (3.66 net, identified as H-101) and 32.1 MMBtu/hr input (27.6 net, identified as H-801). This increased the natural gas processing capacity of the facility to 120 MMscf per day. Also, the Ajax Model 2802LE, 384 bhp engine, which powered an emergency electrical generator, and was the only RICE at Houston, was removed from service at this time.

On December 28, 2009, MarkWest requested authorization through a General Permit (GP9-63-00936A), to allow installation and operation of two emergency, No. 2 fuel oil-fired electrical generator engines. At the time, Houston had electrical connections to the emergency generators of surrounding natural gas compressor stations. The request was later withdrawn, after the company decided that installation of these engines is not necessary.

On March 2, 2010, the Department received an application for State Only Operating Permit (SOOP) OP-63-00936. This application was current for all sources authorized through PA-63-00936B. On May 4, 2010, the operating permit application for OP-63-00936 was found to be administratively complete. During May 2010, EPA issued the Greenhouse Gas Tailoring Rule. Houston was determined to be a Major Source of CO<sub>2</sub>e emissions and on January 24, 2013, the Department returned this application, after receiving an application for a Title V Operating Permit (TVOP).

On September 30, 2010, Plan Approval PA-63-00936C was issued to MarkWest for an 18-month period, to allow installation and temporary operation of one stabilizer with a depropanizer and a 148.0 MMBtu/hr natural gas-fired process heater. The PA also authorized an additional depropanizer with a 7.6 MMBtu/hr natural gas-fired regenerator heater. The natural gas processing capacity of the facility was increased to 200 MMscf per day. In addition, the TEG dehydration unit and associated reboiler were removed from service.

On April 13, 2011, Plan Approval PA-63-00936D was issued to MarkWest for an 18-month period, to allow installation and temporary operation of a fractionator tower and a 148.0 MMBtu/hr natural gas-fired process heater. This change increased the natural gas processing capacity of the facility to 355 MMscf per day.

On December 8, 2011, Plan Approval PA-63-00936E was issued to MarkWest for an 18-month period, to allow installation and temporary operation of a natural gas liquids rail load-out terminal controlled by a vapor collection system and enclosed flare. MarkWest requested authorization to construct this terminal as an expansion of the Houston Gas Plant.

On July 2, 2012, after Houston had been determined to be a Major Source of CO<sub>2e</sub> emissions, Markwest submitted an application for a Title V Operating Permit (TVOP). As mentioned above, this application replaced the SOOP application submitted in September 2010. On June 23, 2014, before this application was processed, the US Supreme Court (SCOTUS) issued a decision in *Utility Air Regulatory Group v. EPA*, 134 S. Ct. 2427 (2014) (“UARG”). The SCOTUS stated that facilities that have emissions that exceed Major Source levels of CO<sub>2e</sub> and other pollutants are considered Title V sources. However, if CO<sub>2e</sub> is the only Major Source level exceeded, that facility is not considered a Title V source. Houston is a minor source of criteria and Hazardous Air Pollutant (HAP) emissions and, therefore, was again considered a Minor Source. On August 10, 2017, when a new application for a SOOP was received, the TVOP application for a TVOP was returned to Markwest. Review of this second application for an initial SOOP is a subject of this Technical Review Document (TRD).

On October 4, 2012, the Department issued PA-63-00936F, to authorize construction and temporary operation of the Houston Deethanizer (Source ID 205) and the WV Depropanizer (Part of Source ID 207).

On October 7, 2012, the remaining requirements of PA-63-00936C were incorporated into PA-63-00936E, making PA-63-00936C inactive.

On January 8, 2014, the remaining requirements of PA-63-00936D were incorporated into PA-63-00936F, making PA-63-00936D inactive. On the same day, the remaining requirements of PA-63-00936E were also incorporated into PA-63-00936F, making PA-63-00936E inactive. This change left PA-63-00936F as the only active air approval for Houston.

On September 15, 2014, the Department received an application for Plan Approval, PA-63-00936H, to install a flare on the fractionator (part of Source ID 106). The flare is both an air emission control device and an emission source. This flare had already been constructed on, or about, April 6, 2011, without authorization from the Department. On August 4, 2014, a Consent Order and Agreement (CO&A) was finalized to resolve this situation. The CO&A requires submittal of PA-63-0093H, a Civil Penalty, and periodic Civil Penalty payments, until the Department incorporates the requirements of operation of the flare into a permit. Issuance of the permit, proposed by the subject of this TRD, will complete all requirements in the CO&A. Review of the application for PA-63-00936H is the other subject of this TRD.

On October 20, 2014, the Department received a letter from Markwest, stating that the company had voluntarily accepted a requirement that made all existing sources at the facility which were subject to 40 CFR Part 60, Subpart KKK - "Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011," be subject, instead, to 40 CFR Part 60, Subpart OOOO - "Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced After August 23, 2011, and on or before September 18, 2015." This provided consistent requirements for the emission sources at the plant. The company also stated its intent to notify EPA of its decision. Subpart OOOO effectively reduces emissions from the affected sources, by using a lower trigger concentration limit for leak detection in its required monitoring and repair program. Also, compliance with Subpart OOOO assists in maintaining Houston's status as a minor source of air emissions. Meeting the requirements of Subpart OOOO ensures compliance with Subpart KKK, and the Department accepted this changed requirement. This letter was submitted in the form of an application for Plan Approval, and it was assigned the designation PA-63-00936G. The Department later determined that a PA was not necessary to implement this change in monitoring. On November 17, 2014, PA-63-00936G was withdrawn by the company.

On March 30, 2017, the Department issued RFD-63-00936D, which stated that Houston Plant 1, containing a depropanizing process, could be replaced by the equipment in Houston Plant 1a, (Source ID 201), without needing a Plan Approval. The new system did not have a stabilizer, a process that the old plant included. Emission of no single pollutant increased by this change and emission of some pollutants decreased. The equipment changes were made and the new equipment and their requirements are included in the equipment inventory and emission baseline for the proposed SOOP.

As mentioned above, the September 21, 2017, updated application for a SOOP for the Houston Natural Gas Processing Plant and the August 2014 application for PA-63-00936H to install the fractionator flare are the subjects of this TRD.

**Sources, Control Devices, and Emissions:**

The Markwest Liberty Midstream & Resources, LLC Houston Natural Gas Processing Plant receives natural gas, which has been dewatered and compressed, from wells. Usually, the gas processed is “wet gas” from deep well (Marcellus, Utica, etc.) shale deposits. While the gas has large amounts of natural gas liquids, it contains very little sulfur, and need not be sweetened. Processes at the plant extract additional water, ethane, propane, butanes, and natural gasoline from the natural gas. The primary emission sources at the facility are four depropanization plants, one deethanizer, one fractionator, dehydrators, and rail and truck loadouts. Well gas is normally received from any of several Markwest natural gas compressor stations. Gas from these stations can also be directed to other natural gas processing stations, such as Markwest’s natural gas processing plants in Butler County and West Virginia. Also, partially processed natural gas and liquid products from other processing plants may be finished at Houston. An analysis for single source facility determination was conducted in the review of PA- 63-00936F, in a Technical Review Document dated August 24, 2012, revised August 27, 2012.

The facility also operates electrically-powered, natural gas compressors. The drive units are not sources of air emissions. Most of this compression capacity is used to increase the pressure of the processed natural gas to drive it through the downstream pipeline to the sales point. Additional electrically powered natural gas compression is used to take gases removed from natural gas liquids by the stabilizer and reintroduce this gas to the inlet of the processing systems. Two new electrically-powered compressors were installed at the rail load-out terminal as part of the vapor recovery system.

Emission processes at the Houston Natural Gas Processing Plant and their control are listed in Table 1:

**Table 1: Emission Sources and Control**  
**Markwest Liberty Midstream & Resources, LLC**  
**Houston Natural Gas Processing Plant (SOOP-63-00936)**

ID	Source Name	Emission Control	Authorization	Installation or Startup
201	Houston 1a Regenerative Gas Heater (6.59 MMBtu/hr)		RFD 63-00936D	3/30/2017
202	Houston 2 Regenerative Gas Heater (4.14 MMBtu/hr)		PA-63-00936B	11/13/2009
203	Houston 3 Hot Oil Heater (148 MMBtu/hr)	Ultra-Low NO <sub>x</sub> Burners, FGR, & Staged Combustion	PA-63-00936C	9/30/2012
204	Houston 3 Regenerative Gas Heater (6.59 MMBtu/hr)		PA-63-00936C	9/30/2012
205	Houston 4 Regenerative Heater (6.59 MMBtu/hr)		Modification of PA-63-00936F	11/14/2014
206	Houston Deethanizer Hot Oil Heater (113.2 MMBtu/hr)	Ultra-Low NO <sub>x</sub> Burners, FGR, & Staged Combustion	PA-63-00936F	10/4/2012
207	Houston Deethanizer Regenerative Heater (9.19 MMBtu/hr)		PA-63-00936F	10/4/2012
208	Houston Fractionator Hot Oil Heater (148 MMBtu/hr)	Ultra-Low NO <sub>x</sub> Burners, FGR, & Staged Combustion	PA-63-00936D	4/13/2011
209	Plant/Fractionator Flares	(The Plant Flare also controls emergency releases and blowdowns for maintenance and pigging operations.)	PA-63-00936B and PA-63-00936H	7/30/2008
210	Facility-Wide Fugitive Emissions		PA-63-00936B-F	Various
211	Office Heater		Proposed SOOP	
212	Truck Loadout (75 MMGal of propane, 75 MMGal of butanes, & 65 MMGal of natural gasoline)	Plant Flare	PA-63-00936B	7/30/2008
213	Rail Loadout (525 MMGal of propane, 92 MMGal of iso-butane, 166 MMGal of n-butane, & 166 MMGal of natural gasoline)	Flare & later Vapor Recovery System (Installed 10/4/2012)	PA-63-00936E	12/8/2011
214	Rail Yard Flare (15.2 MMBtu/hr)		PA-63-00936E	12/8/2011
215	3 Natural Gasoline Storage Tanks (444,780 gallons, each)	Vented to Plant Flare	Proposed SOOP	Prior to 4/2013
216	Emergency Fire Pump Engines (2-250-bhp, Diesel)		Proposed SOOP	2011
217	Uncontrolled Plant Blowdowns		Proposed SOOP	Various
218	Compressors	Change rod packing every 3 years or 26,000 hours	Proposed SOOP	Various

Total potential annual emissions from the facility, as estimated by the applicant with mentioned exceptions, are listed in Table 2:

**Table 2: Facility Potential to Emit**  
**Markwest Liberty Midstream & Resources, LLC**  
**Houston Natural Gas Processing Plant (SOOP-63-00936)**

ID	Source Name	Emissions						
		PM <sub>2.5</sub>	PM <sub>10</sub>	NO <sub>x</sub>	CO	VOC	HAPs	CO <sub>2e</sub> <sup>1</sup>
		TPY	TPY	TPY	TPY	TPY	TPY	TPY
201	Houston 1a Regenerative Gas Heater (6.59 MMBtu/hr)	0.22	0.22	1.54	1.18	0.16	0.05	3715
202	Houston 2 Regenerative Gas Heater (4.14 MMBtu/hr)	0.14	0.14	1.78	1.49	0.10	0.03	2328
203	Houston 3 Hot Oil Heater (148 MMBtu/hr)	3.24	3.24	18.80	25.93	1.10	1.20	83,435
204	Houston 3 Regenerative Gas Heater (6.59 MMBtu/hr)	0.22	0.22	1.54	1.18	0.16	0.05	3,715
205	Houston 4 Regenerative Heater (6.59 MMBtu/hr)	0.22	0.22	1.54	1.18	0.16	0.05	3,715
206	Houston Deethanizer Hot Oil Heater (113.2 MMBtu/hr)	3.69	3.69	14.87	19.83	0.84	0.92	63,816
207	Houston Deethanizer Regenerative Heater (9.19 MMBtu/hr)	0.30	0.30	2.15	3.31	0.22	0.07	5,181
208	Houston Fractionator Hot Oil Heater (148 MMBtu/hr)	3.24	3.24	18.80	25.93	1.10	1.20	83,435
209	Plant/Fractionator Flares	-	-	1.39	6.32	4.30	-	2,624
210	Facility-Wide Fugitive Emissions	-	-	-	-	24.62	0.15	83
211	Office Heater	-	-	--	-	-	-	5
212	Truck Loadout (75 MMGal of propane, 75 MMGal of butanes, & 65 MMGal of natural gasoline)	-	-	-	-	2.42	0.41	0
213	Rail Loadout (525 MMGal of propane, 92 MMGal of iso-butane, 166 MMGal of n-butane, & 166 MMGal of natural gasoline)	-	-	-	-	7.29	1.22	0
214	Rail Yard Flare (15.2 MMBtu/hr)	-	-	0.65	2.97	4.80	0.81	547
215	3 Natural Gasoline Storage Tanks (444,780 gallons, each)	-	-	-	-	0.58	0.03	0
216	Emergency Fire Pump Engines (2-250-bhp, Diesel) <sup>2</sup>	0.01	0.01	0.17	0.15	0.02	-	31
217	Uncontrolled Plant Blowdowns	-	-	-	-	0.96	0.04	2,787
218	Compressor Rod Packing	-	-	-	-	0.01	0.00	63
<b>Facility Total</b>		<b>11.27</b>	<b>11.27</b>	<b>63.22</b>	<b>89.47</b>	<b>48.82</b>	<b>6.23</b>	<b>255,480</b>

(See following page for comments.)

<sup>1</sup>Emission estimates are based on the 100-year horizon Global Warming Potentials (1-ton CH<sub>4</sub> = 25-ton CO<sub>2</sub>, 1-ton N<sub>2</sub>O = 298-ton CO<sub>2</sub>) in Table A-1 to Part A of Part 98. (Values effective January 1, 2014.)

<sup>2</sup> The Emergency Fire Pump Engines, whose operation is limited to emergency use and that necessary to ensure operability, was assumed to operate 500 hours annually.

All values were determined by Markwest Liberty.

All emission sources, except the Emergency Fire Pump Engines, at the facility operate 8,760 hours per year.

Emission of SO<sub>2</sub> from the facility is negligible and, therefore not included.

Values reported in this table were rounded from calculations performed elsewhere.

### **Regulatory Analysis:**

The Houston Natural Gas Processing Plant is a minor source, because its potential emissions of PM<sub>2.5</sub>, PM<sub>10</sub>, NO<sub>x</sub>, SO<sub>2</sub>, and CO from the facility, with restrictions, are less than the major source threshold of 100 tons per year, potential emissions of VOC are less than 50 tons per year, and HAP emissions have an emission potential less than 10 TPY of any single HAP and 25 TPY of the sum of all emitted HAPs. A facility that does not emit HAPs of this amount is called an Area Source. Emissions of Greenhouse Gases (GHGs) are greater than the Major Source threshold of 100,000 tons of CO<sub>2</sub>e, per year. However, as already discussed, exceeding this threshold does not make the Houston Natural Gas Processing Plant a Title V facility.

The facility was evaluated for applicability of New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAP), other Federal Standards, and applicable requirements of 25 Pa. Code Chapters 121 - 145, of the Commonwealth of Pennsylvania. The following standards were considered:

**Table 3: Regulatory Analysis**  
**Markwest Liberty Midstream & Resources, LLC**  
**Houston Natural Gas Processing Plant (SOOP-63-00936)**

<b><u>Federal Regulations</u></b>	
<b>NSPS</b>	
40 CFR Part 60 Subpart Db - Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units	Per 40 CFR 60.41b, process heaters are excluded from the definition of a steam generating unit. Therefore, no emission process at the plant has requirements under this Subpart.
40 CFR Part 60 Subpart Db - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units	Per 40 CFR 60.41b, process heaters are excluded from the definition of a steam generating unit. Therefore, no emission process at the plant has requirements under this Subpart.

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40 CFR Subpart K - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After June 11, 1973, and Prior to May 19, 1978	The Houston Plant did not exist, and no source at the facility existed, during this time. Therefore, no emission process has requirements under this Subpart.
40 CFR Subpart Ka - Standards of Performance for Storage Vessels for Petroleum Liquids for Which Construction, Reconstruction, or Modification Commenced After May 18, 1978, and Prior to July 23, 1984	The Houston Plant did not exist, and no source at the facility existed, during this time. Therefore, no emission process has requirements under this Subpart.
CFR Part 60 Subpart Kb — Standards of Performance for Volatile Organic Liquid (VOL) Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984	<p>With the exception of the 3 Natural Gasoline Storage Tanks (Source ID 215, 444,780 gallons, each), all of the tanks that have a capacity greater than 75 m<sup>3</sup> (19,813 gallon) are either pressure vessels designed to operate in excess of 204.9 kPa absolute pressure and exempt under 40 CFR 60.110d(2) or used for petroleum condensate stored, processed, or treated prior to custody transfer and exempt under 40 CFR 60.110d(4).</p> <p>The Natural Gasoline Storage Tanks are fixed roof tanks with the vapor space vented to the Plant Flare (Source ID C209A) and the vapor pressure of natural gasoline is up to 16 psi at 100° F. Therefore, the tanks have applicable requirements under this Subpart.</p>
40 CFR Part 60, Subpart VV - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for which Construction, Reconstruction, or Modification Commenced After January 5, 1981, and on or Before November 7, 2006.	This Subpart does not directly apply to sources. It only applies when the Subpart, or specific requirements within the Subpart are called for, from NSPS or MACT regulations. Specific requirements within 40 CFR Part 60, Subpart KKK do call for requirements within Subpart VV. Sources at Houston did have applicable requirements within Subpart VV. However, these sources are now subject to 40 CFR Part 60, Subpart OOOO, instead. Subpart OOOO does not call any of the requirements in Subpart VV. Therefore, no emission process has requirements under this Subpart.

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<p>40 CFR Part 60, Subpart VVa - Standards of Performance for Equipment Leaks of VOC in the Synthetic Organic Chemicals Manufacturing Industry for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006</p>	<p>This Subpart, also, does not directly apply to sources. It only applies when the Subpart, or specific requirements within the Subpart are called for, from NSPS or MACT regulations. Specific requirements within 40 CFR Part 60, Subpart OOOO do call for requirements within Subpart VVa. Therefore, emission processes at Houston have requirements under this Subpart.</p>
<p>40 CFR Part 60, Subpart KKK - Standards of Performance for Equipment Leaks of VOC From Onshore Natural Gas Processing Plants for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011</p>	<p>Sources at Houston did have applicable requirements within the Subpart. However, on October 20, 2014, the Department received a letter from Markwest requesting that the sources at the plant which were subject to Subpart KKK, instead be subject to the applicable requirements of 40 CFR Part 60, Subpart OOOO. At that time, some other sources at Houston were already subject to Subpart OOOO. This change would provide consistency in monitoring, and lower emissions. The Department determined that compliance with Subpart OOOO met all of the requirements of Subpart KKK and the change was authorized. Therefore, emission processes at Houston, now has requirements under this Subpart that are superseded by more restrictive elective requirements.</p>
<p>40 CFR Part 60 Subpart LLL - Standards of Performance for SO<sub>2</sub> Emissions From Onshore Natural Gas Processing for Which Construction, Reconstruction, or Modification Commenced After January 20, 1984, and on or Before August 23, 2011</p>	<p>This Subpart applies to sweetening units and subsequent sulfur recovery units. The Houston Plant does not contain a sweetening unit. Therefore, the Subpart is not applicable.</p>
<p>40 CFR Part 60 Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines</p>	<p>The plant contains two reciprocating internal combustion engines (RICE) as Source ID 216. They are 250-bhp, emergency, diesel, fire pump engines. Engines that meet this description, and are a model year of 2009, or later, are covered by this Subpart. The two RICE were new and constructed during 2011. These two engines have applicable requirements under the Subpart.</p>

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<p>40 CFR Part 60, Subpart OOOO - Standards of Performance for Crude Oil and Natural Gas Production, Transmission and Distribution for which Construction, Modification or Reconstruction Commenced after August 23, 2011, and on or before September 18, 2015.</p>	<p>Prior to the change discussed in this paragraph, some sources at Houston were already subject to Subpart OOOO, because of their classification and date of construction. On October 20, 2014, the Department received a letter from Markwest requesting that the sources at the plant which were subject to Subpart KKK, instead be subject to 40 CFR Part 60, Subpart OOOO. This change would provide consistency in monitoring, and lower emissions. The Department determined that compliance with Subpart OOOO met all of the requirements of Subpart KKK, and the change was authorized, and made. Therefore, several emission processes, and portions of other emission processes at Houston, have elective requirements under this Subpart.</p>
<p>40 CFR Part 60, Subpart OOOOa - Standards of Performance for Crude Oil and Natural Gas Facilities for which Construction, Modification or Reconstruction Commenced After September 18, 2015.</p>	<p>Only Source ID 201 at the Houston Plant was constructed after September 18, 2015, and requirements with the Subpart are applicable to this source. The effective date of the rule was August 2, 2016. EPA is currently reviewing the final rule, and has made attempts, which have been unsuccessful to date, to stay the requirements of this finalized rule.</p> <p>Therefore, the current applicable requirements of the Subpart are included in the proposed SOOP.</p>

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(Continued - Federal Requirements)

<b>NESHAPs</b>	
40 CFR Part 63, Subpart H - National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks.	This Subpart has requirements for equipment which includes compressors. However, it is only applicable for sources that have requirements under a NSPS or MACT standard that call for this Subpart, which is not the case at the Houston Natural Gas Processing Plant. Therefore, this Subpart has no requirements for any source, at this facility.
40 CFR Part 63, Subpart HH - National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities.	This subpart has differing requirements for both facilities that are major sources of HAPs <sup>1</sup> , and facilities that are area sources. However, at an area source, the only type of source for which the Subpart has requirements is a TEG dehydrator. The plant does not contain a TEG dehydrator. Therefore, this Subpart has no requirements for any source, at the plant.
40 CFR Part 63 Subpart HHH - National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities.	This subpart only applies to facilities that are major sources of HAPs, and is not applicable to Houston Plant. <sup>1</sup>
40 CFR Part 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.	The Houston Natural Gas Processing Plant has two RICE (Source ID 216) which drive emergency fire pumps. However, these engines have applicable requirements under Part 60, Subpart IIII. Subpart ZZZZ exempts engines which have applicable requirements under Part 60, Subpart IIII from any requirements under Subpart ZZZZ. Therefore, this subpart has no applicable requirements for the Houston Plant.
<b>Other Air Programs</b>	
No source at the facility is affected by any other Air Program.	

<sup>1</sup> A major source of Hazardous Air Pollutants (HAP) has potential emissions of at least 10 tons of any single HAP, or 25 tons of the sum of all HAPs. A facility that is not a major source of HAPs is called an area source.

<b><u>Pennsylvania Air Pollution Control Regulations</u></b>	
25 Pa Code 121.7 (Prohibition of Air Pollution)	Section is applicable.
25 Pa Code § 123.1 (Prohibition of Certain Fugitive Emissions)	Section is applicable.
25 Pa Code § 123.2 (Fugitive Particulate Matter)	Section is applicable.
25 Pa Code § 123.11 (Combustion Units)	Section is applicable.
25 Pa Code § 123.13 (Processes)	Section is applicable.
25 Pa Code § 123.21 (General) [Related to SO <sub>2</sub> ]	Section is applicable.
25 Pa Code § 123.31 (Odor Emissions)	Section is applicable.
25 Pa Code § 123.41 (Limitations - Visible Emissions)	Section is applicable.
25 Pa Code § 123.42 (Exceptions - Visible Emissions)	Section is applicable.
25 Pa Code § 123.43 (Measuring Techniques)	Section is applicable.
25 Pa Code Chapter § 127.441 (Operating permit terms and conditions)	Section is applicable. Emission control, workpractice, recordkeeping, and reporting restrictions for the facility were created under the authority of this section.
25 Pa Code Chapter § 129.14 (Open Burning Operations)	Section is applicable. The facility is not in an air basin, and open burning is allowed, with certain exceptions.
25 Pa Code Chapter § 129.56 (Storage tanks greater than 40,000 gallons capacity containing VOCs)	Section is applicable to the natural gasoline storage tanks. (Source ID 215)
25 Pa Code Chapter § 129.57 (Storage tanks less than or equal to 40,000 gallons capacity containing VOCs)	Section is applicable to the railcar tanks.
25 Pa Code 129.91 - 129.95 (Stationary Sources of NO <sub>x</sub> and VOCs)	The facility is not a Major Source and has no requirements under RACT.
25 Pa Code 129.96 - 129.100 (Additional RACT Requirements for Major Sources of NO <sub>x</sub> and VOCs)	The facility is not a Major Source and has no requirements under RACT II.
25 Pa Code Chapter 135.3	Section is applicable.

(Continued.)

(Continued.)

25 Pa Code Chapter 135.5 (Recordkeeping)	<p>Markwest Liberty Midstream &amp; Resources, LLC will fulfill the following requirements:</p> <ol style="list-style-type: none"> <li>1. The permittee shall maintain comprehensive, accurate records which, at a minimum, shall include: <ol style="list-style-type: none"> <li>a. The number of hours per month that each piece of equipment operated; and</li> <li>b. The amount of fuel used per month in each piece of equipment,</li> </ol> </li> <li>2. The owner/operator shall keep daily records of all product delivery. These records shall be kept on site for a period of five years and be made available to the Department upon request.</li> </ol>
25 Pa Code Chapter 139.51 (Purpose) [Related to monitoring]	Testing is required for certain sources at the facility. Section is applicable.

The following changes were made to the proposed SOOP from the existing PA-63-00936F. The applicable requirements of 40 CFR Part 60, Subpart OOOO were added, for the sources which previously had applicable requirements under 40 CFR Part 60, Subpart KKK, which were deleted. Conditions in PA-63-00936F, which have been completed, and have no ongoing applicability, were also deleted. Unlike the other Hot Oil Heaters of similar size at the plant, the Houston 3 Hot Oil Heater (Source ID 203) did not have requirements for periodic stack testing, and these were added. Processing of the proposed SOOP, also includes the processing of the application for PA-63-00936H, for installation of the already, existing Fractionating Flare, which added the source and its requirements, to the proposed permit. Also, language of other conditions in Plan Approval PA-63-00936F was updated.

### **Conclusions and Recommendations:**

An inspection of Houston Natural Gas Processing Plant for a Full Compliance Evaluation (FCE) was last conducted as an initial permit inspection on October 13, 2017. Alexander Sandy, Air Quality Engineer of DEP determined that the plant met all requirements in PA-63-00936F and for the processing of PA-63-00936H, which also means that it meets the requirements in the proposed in the SOOP application. The Rail Yard Flare (Source ID 214) was last tested for VOC and CO emissions and VOC destruction on November 6, 2017, and found to be in compliance with all limits. Copies of the draft permit are being sent to Nathan Wheldon, Senior Manager of Environmental Programs, for the Markwest Liberty, Melissa Baggam, the Department's Air Quality inspector for the facility, and Beth Speicher, Air Quality District Supervisor for the District.

Conditions in the proposed State Only Operating Permit are based on the current PA-63-00936F and the application for PA-63-00936H.

The Markwest Liberty Midstream & Resources, LLC has proposed, in this application, to operate a natural gas processing plant in Chartiers Township, Washington County. I recommend the issuance of a five-year Operating Permit for this facility, subject to the conditions in the proposed initial State Only Operating Permit.

Permit Authorized by this Authorization					
Quantity	Facility Name			PF ID:	707674
	Markwest Liberty Midstream & Resources, LLC / Houston Natural Gas Processing Plant (SOOP-63-00936) & (PA-63-00936H)				
1	Initial SOOP	APS ID:	952124	Auth. ID:	1201527
1	PA (Processed & Incorporated)	APS ID:	1042451	Auth. ID:	707674
Short Descr.		Operating Permit for a natural gas processing plant.			
Permits Inactivated by this Authorization					
Permit #					
		APS ID		Auth. ID	
PA-63-00936F		955267		1206902	
PA-63-00936H		852736		1042451	